

## Precursors From Medicine and Aviation

By James M. Doyle

### Aviation

The aviation community conducts all-stakeholder analyses of crashes and “near misses,” providing immunity to those who report sentinel event near misses and actively seeking out potential dangers, even in periods of apparent success. The National Transportation Safety Board (NTSB) compiles reports from interdisciplinary teams on all significant events, publishes those reports and posts them online.<sup>1</sup> The reports appear in summary form in popular magazines, such as *Flying*. The result is an aviation community — including manufacturers, aviators, airlines and regulators — that is informed about the current lessons of recent errors. Partly thanks to these processes, 2012 was the safest year in the history of American aviation.<sup>2</sup>

### Medicine

In hospital medicine, critical steps taken toward nonblaming, all-stakeholder analysis of individual incidents supplied the thin edge of a wedge for a movement toward broad cultural reform. Early in the medical reform movement, Dr. Donald Berwick, the pioneering head of the Institute for Healthcare Improvement (IHI), challenged the health care system to save 100,000 patients’ lives in 18 months by applying six simple evidence-based practices.<sup>3</sup> These practices — derived from statistician and industrial expert W. Edwards Deming’s Total Quality Management approach — enlisted every member of the teams charged with a patient’s care in learning, using an organizational-accident perspective on error. (As just one example of this, a janitor in a Pennsylvania teaching hospital’s intensive care unit (ICU) discovered the cause of a mysterious outbreak of fatal central line infections when he observed that Ambu bags carrying plentiful bacteria were often left lying uncollected in the ICU.<sup>3</sup>)

IHI enrolled 3,000 hospitals in the “saving 100,000 lives” challenge and surpassed its goal, saving 120,000 patients’ lives. The effort to continuously identify errors and work in diverse, inclusive teams to understand the sources of errors built a culture of safety that, in turn, nourished the ideal of continuous quality improvement. The strategy depended, at its core, on laying aside a tradition of “blaming and shaming” and moving toward a sentinel events approach for reviewing and learning from errors and near misses.

The Institute of Medicine and a variety of other institutional actors in the medical community are fully invested in a sentinel events approach to error.<sup>4</sup> This is not, of course, medicine’s only strategy for addressing iatrogenic injuries, but the Joint Commission, the accrediting body for hospitals, administers a robust sentinel events program that requires the reporting of “unexpected occurrences involving death or serious physical or psychological injury, or the risk thereof” as a matter of routine.<sup>5</sup> Systematically exploiting the lessons of error serves as an early warning system for other hospitals, a repository of best practices, and a toolbox of proven fixes. Hospitals are required to report sentinel events and to conduct and submit a standard-format “root cause” analysis of each event. The Joint Commission compiles these analyses and periodically issues “Sentinel Event Alerts” when repetitive issues are identified. These reports contribute to the review and modification of ongoing practices.<sup>5</sup> A number of professional journals, such as the *Annals of Internal Medicine* and the *Lancet*, regularly circulate forward-looking accounts of error, and the National Patient Safety Foundation is an ongoing force in preventing medical error.

### Notes

1. National Transportation Safety Board, Accident Investigations, Aviation Accident Reports, [https://www.ntsb.gov/investigations/reports\\_aviation.html](https://www.ntsb.gov/investigations/reports_aviation.html).
2. Mouwad, J., & Drew, C. (2013). Airline industry at its safest since dawn of jet age. *New York Times*, February 12, p. A1.
3. Kenney, C. (2008). *The Best Practice: How The New Quality Movement Is Transforming Medicine*. New York, NY: Public Affairs.
4. Institute of Medicine. (2000). *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academies Press.
5. Joint Commission, Sentinel Events, [http://www.jointcommission.org/sentinel\\_event.aspx](http://www.jointcommission.org/sentinel_event.aspx).